



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,607	08/15/2001	Reto Stamm	X-727 US	1667
24309	7590	09/21/2004	EXAMINER TAT, BINH C	
XILINX, INC ATTN: LEGAL DEPARTMENT 2100 LOGIC DR SAN JOSE, CA 95124			ART UNIT 2825	PAPER NUMBER

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/930,607	STAMM ET AL.
	Examiner Binh C. Tat	Art Unit 2825

*--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 15 August 2001.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-13 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-13 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 15 August 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 05/06/02.

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

## DETAILED ACTION

1. This office action is in response to application 09/930607 file on 08/15/01.

Claim 1-13 remain pending in the application.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Levi et al. Adi (US Patent 6430736).

3. As to claims 1, 12, and 13 Levi et al. teach a method for executing instructions of a computer program in a computing arrangement that includes an instruction processing engine coupled to a programmable logic device (PLD), comprising the steps of: profiling the computer program during execution on the instruction processing engine, whereby profile data are generated for code segments in the computer program (see fig 3 fig 4 code 6 lines 30 to col 4 lines 13); selecting a code segment for transformation to a hardware implementation as a function of the profile data (see fig 3 fig 4 code 7 lines 58 to col 8 lines 3); transforming the code segment into a configuration bitstream that implements functionality performed by the code segment (see fig 3 fig 4 code 8 lines 4-60); configuring the PLD with the configuration bitstream (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60); and activating the PLD in lieu of

execution of the code segment during execution of the computer program (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60).

4. As to claims 2, Levi et al. teaches wherein the profile data include execution frequencies of code segments and execution times of code segments (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60).

5. As to claims 3, Levi et al. teach further comprising evaluating code segments as a function of respective execution times of software implementations and execution times of hardware implementations (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60).

6. As to claims 4, Levi et al. teach further comprising: implementing functions of multiple selected code segments in the PLD (see fig 4 and fig 5 col 7 to col 11); repeatedly evaluating code segments during execution of the application program as a function of the profile data (see fig 4 and fig 5 col 7 to col 11); selecting a replacement code segment as a function of the profile data for a target code segment implemented in the PLD and transforming the replacement code segment into a configuration bitstream that implements the replacement code segment in place of the target code segment (see fig 4 and fig 5 col 7 to col 11); and reconfiguring the PLD with the configuration bitstream (see fig 4 and fig 5 col 7 to col 11).

7. As to claims 5, Levi et al. teach further comprising caching configuration bitstreams associated with one or more target code segments (see fig 4 and fig 5 col 7 to col 11).

8. As to claim 6, Levi et al. teach wherein the profile data include execution frequencies of code segments and execution times of code segments (see fig 4 and fig 5 col 7 to col 11).

9. As to claim 7 Levi et al. teach further comprising evaluating code segments as a function of respective execution times of software implementations and execution times of hardware implementations (see fig 4 and fig 5 col 7 to col 11).

10. As to claim 8 Levi et al. teach further comprising: generating a driver code segment for interfacing with the PLD while the PLD is performing the functionality of the code segment; and executing the driver code segment on the instruction processing engine in lieu of the code segment (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60)..

11. As to claim 9, Levi et al. teach further comprising: generating a driver the PLD while the PLD is performing the functionality of the code segment; and executing the driver code segment on the instruction processing engine in lieu of the code segment (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60)..

12. As to claim 10, Levi et al. teach further comprising replacing the first instruction of the code segment with a branch instruction that has a target address referencing the driver code segment (see fig 3 fig 4 fig 5 code 9 lines 43 to col 11 lines 60)..

13. As to claim 11, Levi et al. teach further comprising: translating instructions of the computer program from a first instruction set to instructions of a second instruction set, wherein the first instruction set is associated with a processor architecture that is different from the instruction processing engine; and executing the instructions of the second instruction set by the instruction processing engine (see fig 4 and fig 5 col 7 to col 11).

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh C. Tat whose telephone number is (571) 272-1908. The examiner can normally be reached on 7:30 - 4:00 (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mathew Smith can be reached on (571) 272-1907. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-1908 for regular communications and (703) 305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Binh Tat  
Art unit 2825  
September 15, 2004



LEIGH M. GARBOWSKI  
PRIMARY EXAMINER